

Pendulum Lab

name block

Purpose: Find the relationship between

Part 1: period and length of a pendulum

Part 2: period and another variable

(options: mass of the bob, m , initial amplitude A or x_0 - sideways distance you pull before dropping)

Hypothesis:

period, T is the time for one oscillation of the pendulum - a mass on a string

Length, L is the distance from the pivot point to the centre of mass.

$T = 2 \pi \sqrt{L/g}$ where g is the gravitational field strength = 9.81 N/kg near Earth

Part 1: a graph of T vs \sqrt{L} should be linear with a slope = $2 \pi / \sqrt{g} = 2.0 \text{ s}/\sqrt{\text{m}}$

Part 2: come up with a hypothesis - reasons

Procedure:

get a stand, clamp string over 1.0 m, mass, ruler and timer

Part 1:

Part 2:

Observations: include units and uncertainties
tables - time for 3 swings = t , $T=t/3$

Part 1

Part 2

Analysis - graph T vs root L and T vs other variable

get equation, %error for part 1

conclusion
sources of uncertainty